WHAT IS CLAIMED:

1. A transceiver comprising:

a receiver direct converter translating a received signal to a baseband of the received signal and digitizing the translated, received signal;

an adaptive canceller comprising a reference direct converter, the reference direct converter outputting a digitized transmit signal reference of a spectral energy of a transmitter within the bandwidth of a receiver; and

a matched filter, wherein the receiver direct converter, the reference direct converter, and the matched filter suppress the spectral energy of the transmitter within the bandwidth of the receiver.

2. The transceiver of Claim 1, wherein the transceiver is a full duplex transceiver.

3. The transceiver of Claim 1, further comprising a transmit and receive antenna radiator.

4. The transceiver of Claim 1, further comprising a transmit antenna radiator and a receive antenna radiator.

5. The transceiver of Claim 1, where the receiver direct converter, the reference direct converter, and the matched filter have approximately 90 dB attenuation.

6. The transceiver of Claim 1, wherein the receiver direct converter has a sampling rate approximately equal to that of the carrier frequency of interest.

7. The transceiver of Claim 1, wherein the reference direct converter has a sampling rate approximately equal to that of the carrier frequency of interest.

8. The transceiver of Claim 1, wherein the canceller further comprises an adaptive digital transversal filter adapted to align an amplitude and a phase of the digitized transmit signal reference in a reference path with a transmit signal in a leakage receiver path, the adaptive digital transversal filter outputting an compensated digitized transmit signal reference.

9. The transceiver of Claim 1, wherein the transceiver is adapted to cancel interference from other co-sited transmit antennas.

10. A method of attenuating a transmitter signal spectrum within a bandwidth of a receiver, the method comprising:

digitizing a received signal which is corrupted by components of a transmit signal;

creating a digitized reference transmit signal of the transmit signal within the bandwidth of the receiver;

aligning the digitized reference transmit signal in amplitude, phase and time delay with the digitized received signal;

subtracting the digitized reference transmit signal from the digitized received signal to form a residue; and

suppressing a transmitter spectral signal power of the residue within the bandwidth of the receiver.

11. The method of Claim 10, further comprising adjusting the transmit signal based on the residue determined by subtracting the digitized reference transmit signal from the digitized received signal.

12. A transceiver comprising:

a duplexer coupled to an antenna;

a receiver receiving a first signal from the duplexer;

a transmitter sending a second signal to the duplexer; and

an adaptive, digital, coherent spectral canceller coupled to the receiver and the transmitter, the canceller attenuating a signal spectrum leakage of the second signal within a bandwidth of the first signal.